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GIS@LANL
Brad McKown

GIS @ LANL

Why is GIS important to LANL, how is it being used, and what can the GIS Program do for you?

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November 10, 2021



WHY is GIS important at LANL?

GIS provides a platform for data/information/tools about WHERE something is, has been, and/or will be.

- A static location, like a building or cultural resource site
- An active location, like a construction site, or the movements of a taxi

WHERE something is often defines:

WHAT can be done there.

- Ex. asbestos area, wetland

HOW it should be done.

- Ex. confined space, beryllium area

WHO is able to do it.

- Ex. security area, radiation area

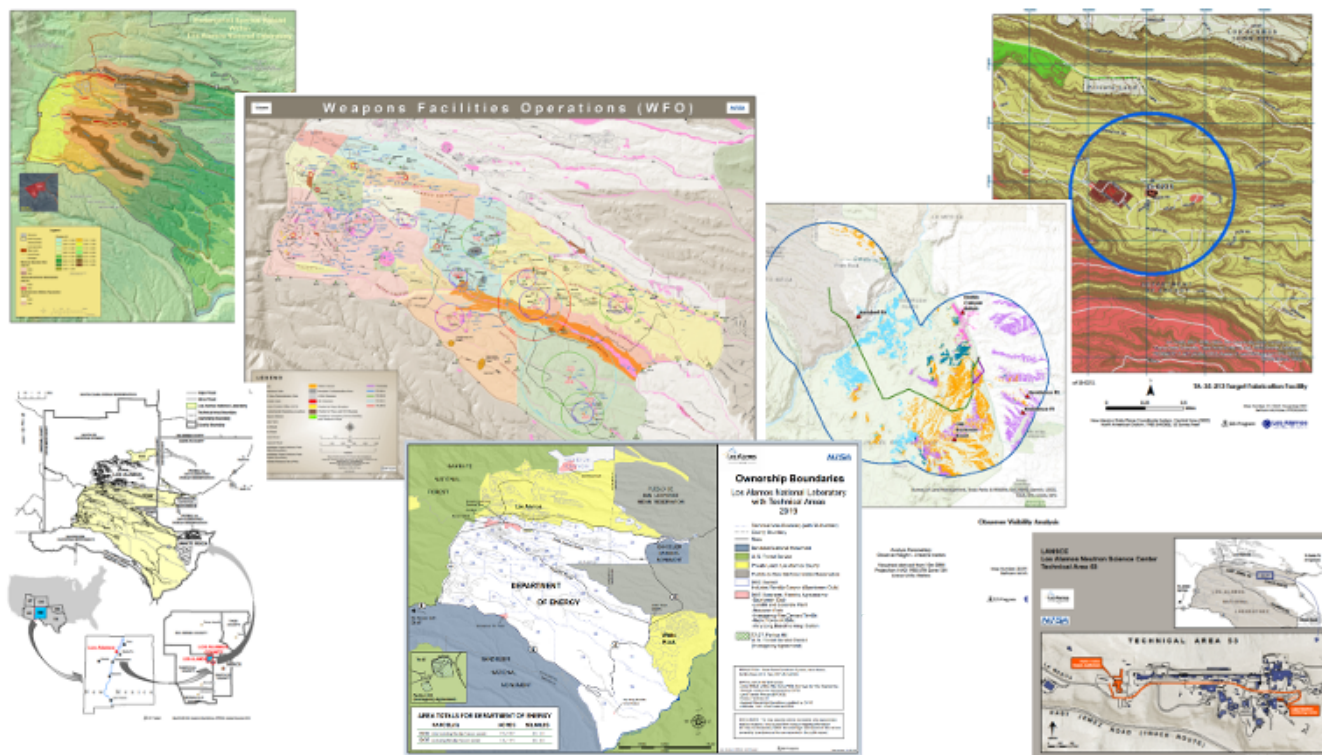
WHEN it can be done.

- Ex. Mexican Spotted Owl habitat, firing site buffer

and sometimes even WHY!

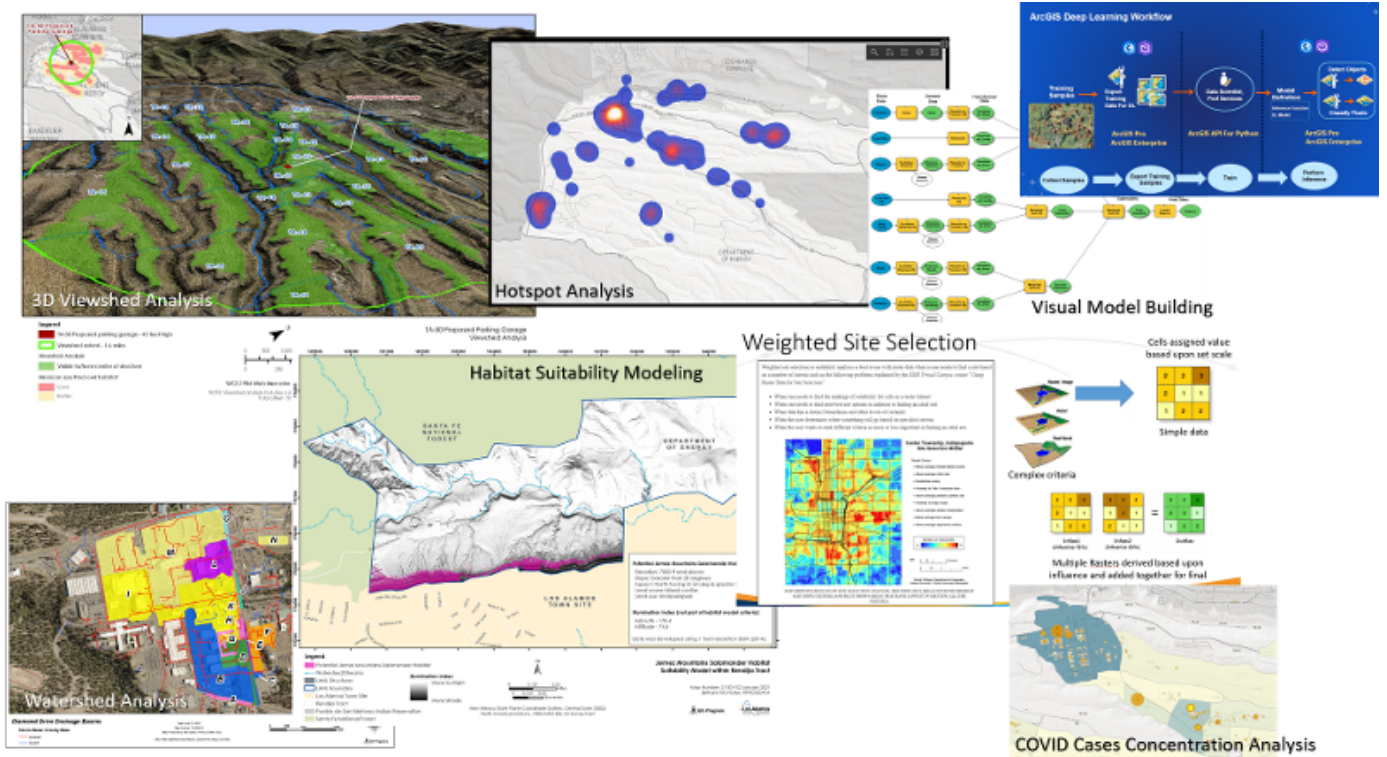
- Ex. a rain event nearby triggers a storm water inspection

HOW is GIS being used at LANL?



Maps of course!!

- Information is better communicated through visualizations
- Maps, especially interactive ones, that provide vast information, have become engrained in society through MapQuest (remember that!?) and Google Maps, Apple Maps, etc..



Analysis and Modeling

- Robust set of tools for 2D and 3D spatial analysis and modeling
- Deep Learning AI

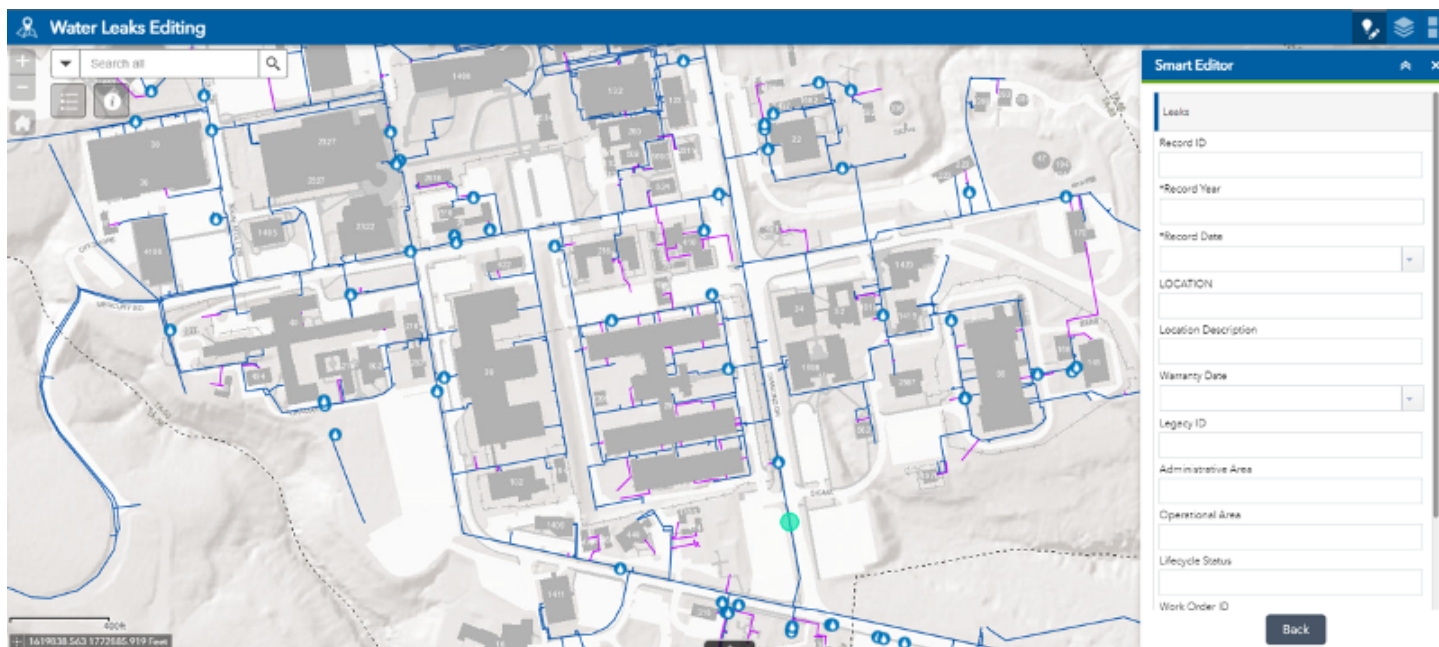
The screenshot shows the LANL Maps website interface. The header includes 'LANL Maps' and a user status 'Enrolled'. The main heading is 'GIS Program'. Below this, a section titled 'Your Organizational Data' lists various categories: Utilities & Infrastructure, Environmental, Safety, Security, Planning, Health & Wellness, and Emergency Operations. At the bottom, a 'Quick Links' section features four tiles: 'LANL Locator', 'Area Trails', '3D Campus Tour', and 'Traffic Cameras'. Additionally, there are links for 'Printable Maps' and 'Map Gallery'.

Web applications

- Out of the box configurable solutions for rapid deployment
- Custom solutions
- Viewing applications to visualize specific data
- Editing applications to maintain your own spatial and tabular data
- 3D interactive maps
- Custom base maps
- etc..

General LANL user mapping portal

- One-stop shop for maps, apps, and useful links

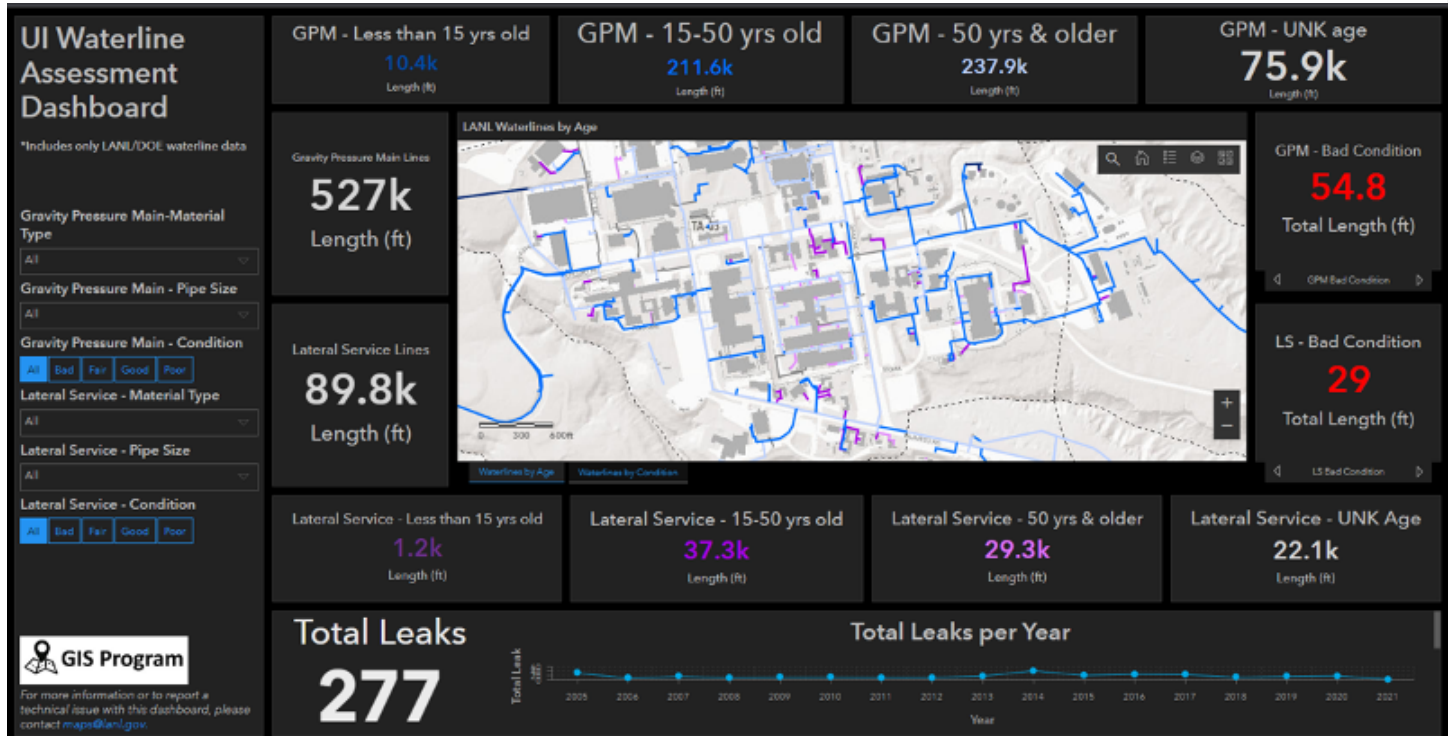


Apps to fulfill a specific need and/or enable direct user editing

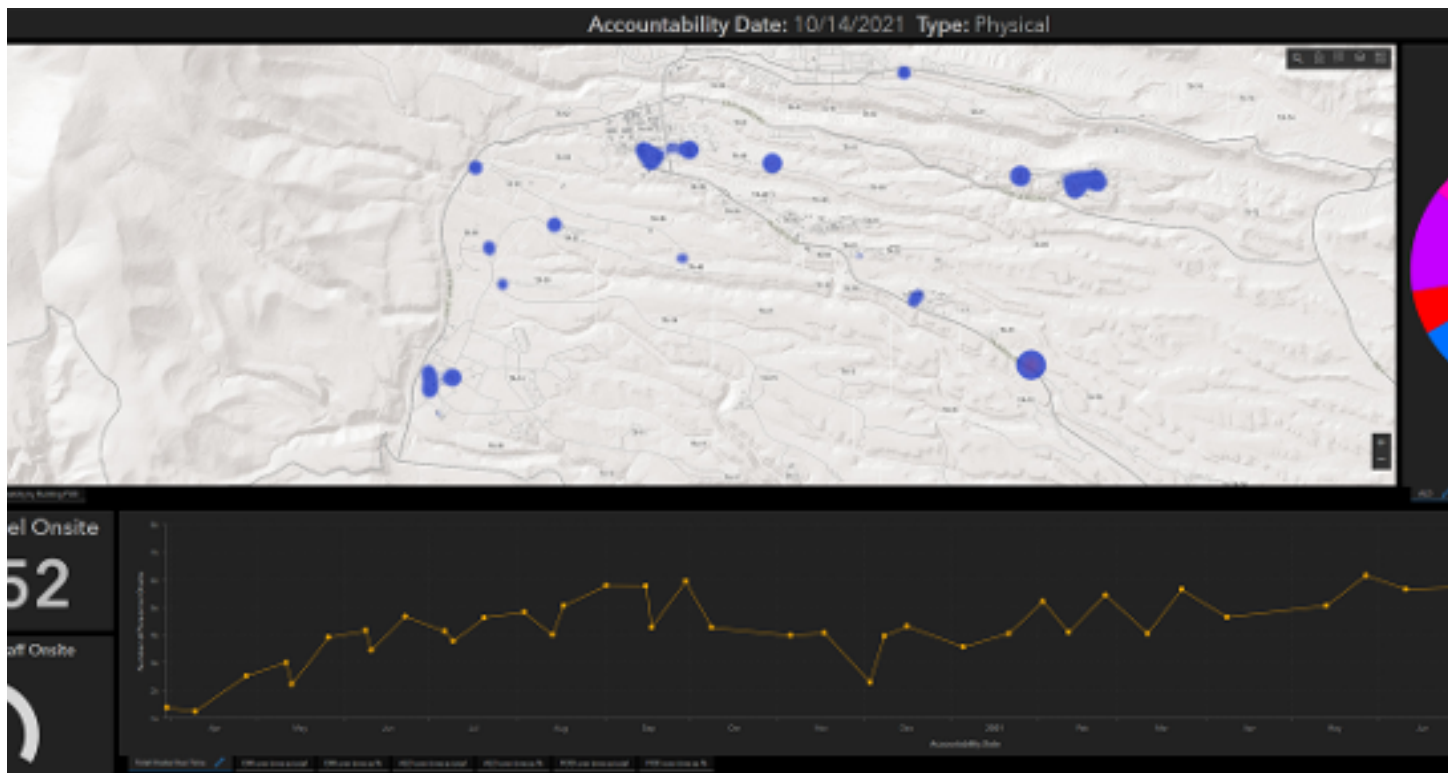
- "Custom" configured apps to fit a specific project or program workflow
- Direct user editing to maintain data

Water Leaks Editing application

- Streamlined data pertinent to UI water engineers
- Simple, easy to use web application to capture water leaks
- Data is updated live and.....



.....directly updates a dashboard to communicate LANL-wide waterline conditions

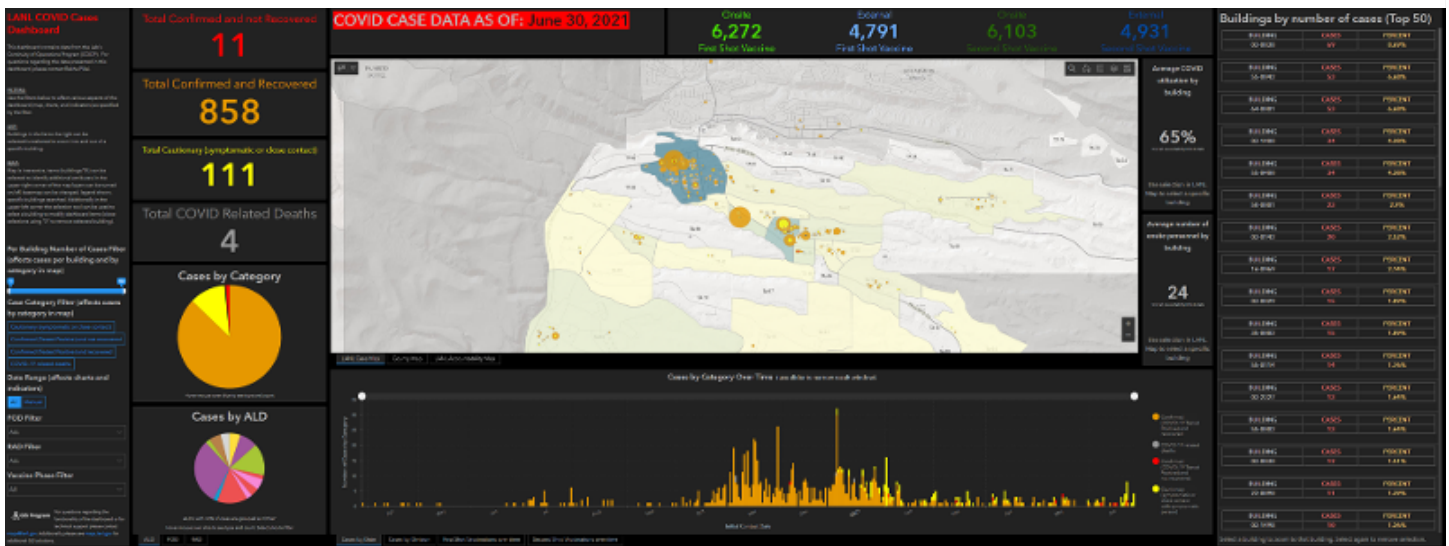


Dashboards

- Summarize complex information with interactive graphs and charts
- Simple spatial and tabular filters that support informed decision making

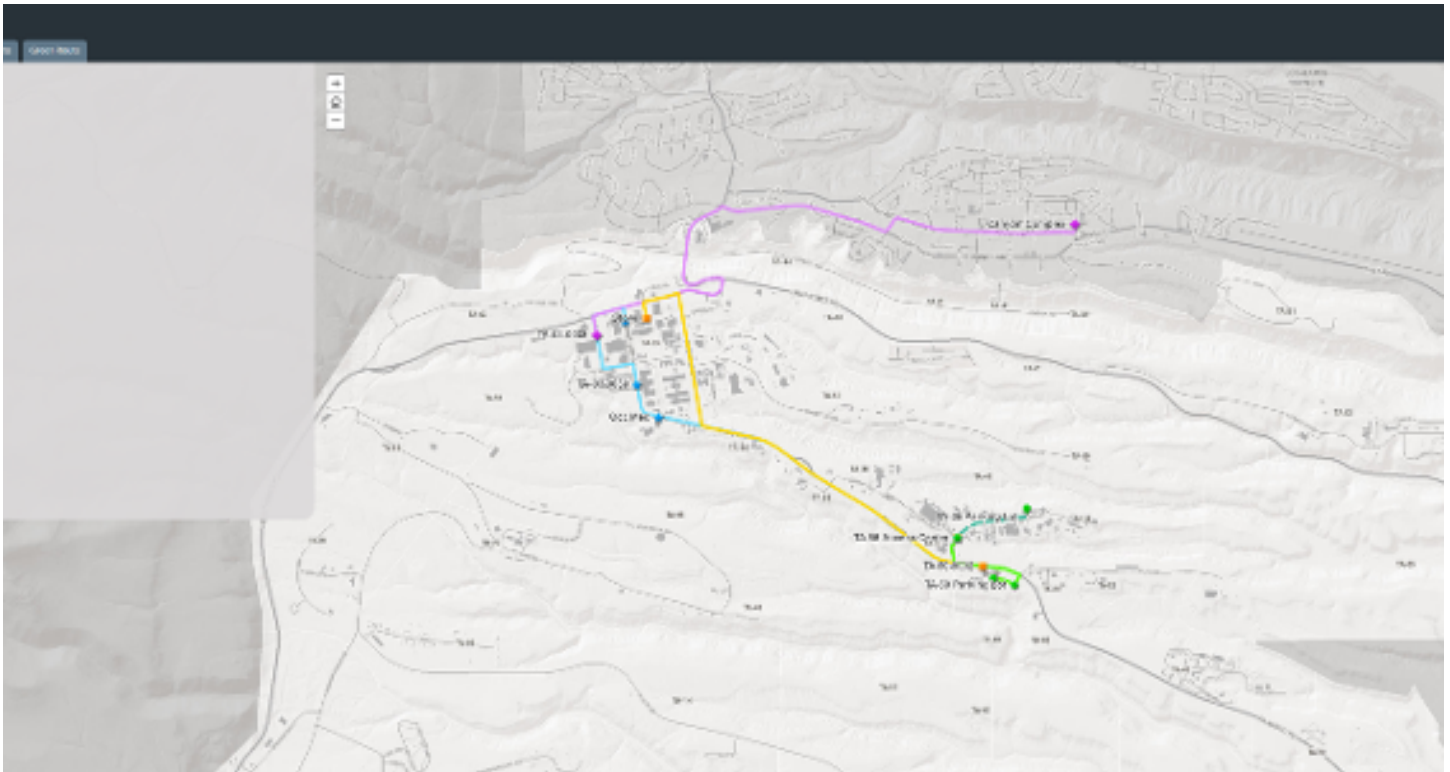
Accountability Dashboard

- Visualized accountability drills and badger reader pulls over time by organization, location type, building, TA, and FOD
- Heat Map of employee concentrations



COVID Cases Dashboard

- Used during the height of the pandemic to quickly communicate case concentrations by building and TA
- Summarized case and vaccination data over time
- Filter by case category, FOD, organization, building, vaccine phase, etc.

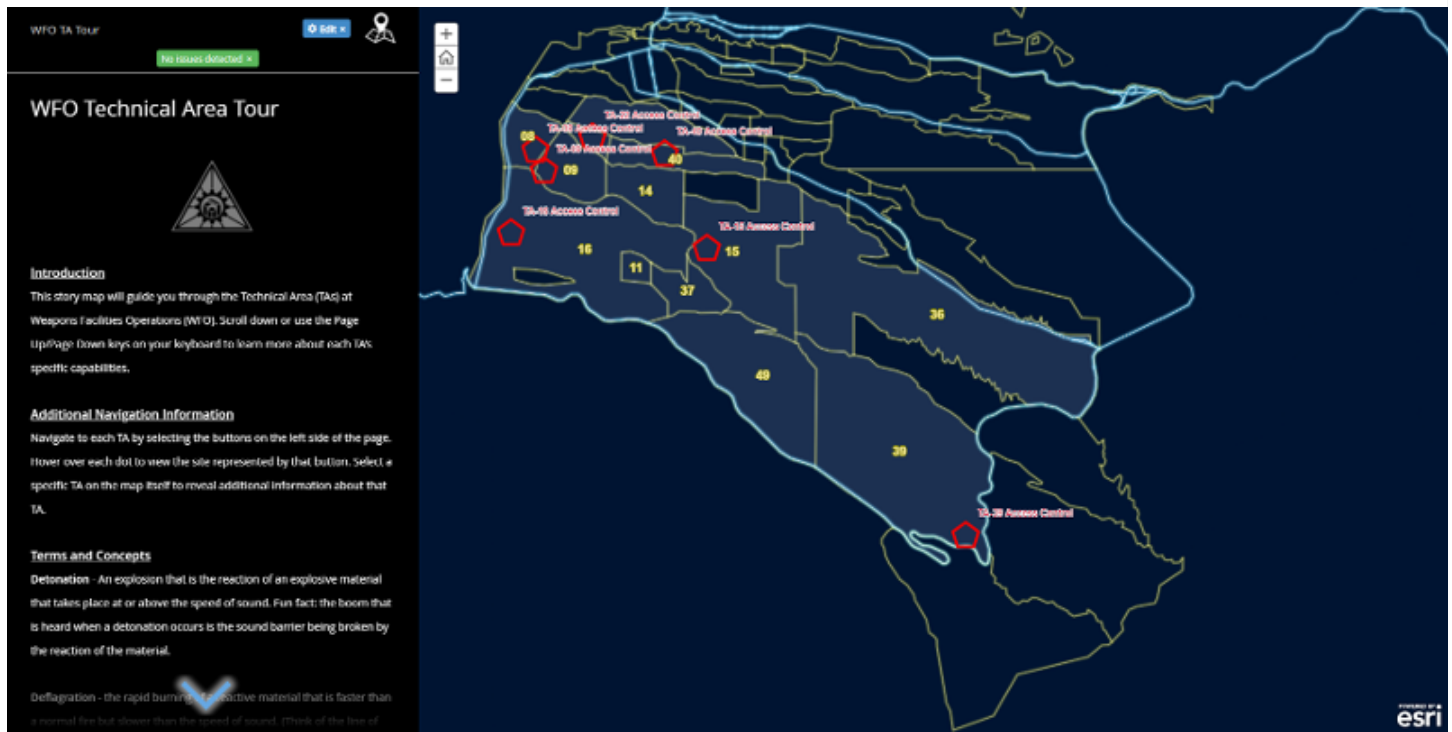


StoryMaps

- This presentation!
- Tell a story through rich graphics, videos, and informative text and interactive mapping

Logistics taxi routes

- A single entry point to combine like maps/apps/information via tabs



WFO TA Tour

- Map-centric tour of sites with multi-media narratives

Mobile Solutions

- ArcGIS Survey123**
Smarter forms, smarter data collection
- ArcGIS Workforce**
Smarter field workforce coordination at your fingertips
- ArcGIS Field Maps**
The all-in-one app for fieldwork
- ArcGIS QuickCapture**
The app for rapid data collection
- ArcGIS Navigator**
Advanced navigation and routing for your workforce

Mobile solutions

- Out-of-the-box configurable mobile solutions approved for LANL iOS devices
- Online/offline mobile mapping
- Smart form surveys for standardized data collection
- Workforce coordination
- Custom navigation and routing

WHAT can the GIS Program do for you?

Everything you've seen here!

The GIS Program is an institutional resource for all things related to GIS/spatial data/mapping. We have a robust Enterprise GIS platform with over 25 years worth of LANL operational spatial data. We are constantly making ties to additional tabular data sources to integrate information so that it can be leveraged through interactive mapping applications.

We provide a standard set of services to all organizations at LANL:

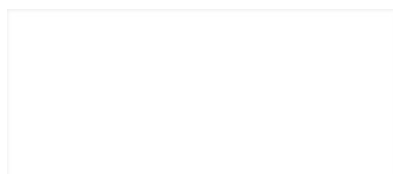
About the GIS Program

The GIS Program manages and coordinates the creation, use, and stewardship of geospatial data and capabilities across LANL.

The GIS Program assists organizations across the lab with:

- Cartographic production
- Spatial analysis and modeling
- GIS systems maintenance and operations support
- Spatial data stewardship
- Application development

But wait, there's more!



LANL Maps in ArcGIS Online



GIS

OCIO approved external cloud environment as internal platform but updates I, providing the latest advancements in

Drone2Map

- 2D and 3D drone image processing into GIS



Powered by ArcGIS StoryMaps